

## REPORT ON OIL ENGINE MACHINERY.

No. 6340

Received at London Office

27 DEC 1928

Date of writing Report 4/12 1928 When handed in at Local Office 4/12/28 10 Port of Robe  
 No. in Survey held at Harima Dockyard Date, First Survey 29<sup>th</sup> Oct. 1928 Last Survey 24 Nov. 1928  
 Reg. Book. 72571 on the Single Triple Quadruple Screw vessel "TAIYIN MARU" Ex "HALLFRIED" Number of Visits 8  
 Tons Gross 5154.91  
Net 3653.75  
 Built at Rotterdam By whom built Waf. & W. Rijkse & Co Yard No. 162 When built 1922  
 Engines made at Amsterdam By whom made Werkspoor Engine No.          When made 1922  
 Donkey Boilers made at do By whom made do Boiler No. 1375 When made 1921  
 Brake Horse Power          Owners TAIYO KAIUN KAB. KAISHA Port belonging to FUCHU  
 Nom. Horse Power as per Rule 563 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes  
 Trade for which vessel is intended America (North & South) Australia & Japan.

**OIL ENGINES, &c.**—Type of Engines Werkspoor Diesel 2 or 4 stroke cycle 4 Single or double acting Single  
 Maximum pressure in cylinders 500 lbs Diameter of cylinders 560 mm Length of stroke 1000 mm No. of cylinders 12 No. of cranks 12  
 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 770 mm Is there a bearing between each crank Yes  
 Revolutions per minute 125 Flywheel dia. 2320 mm Weight 5760 kg Means of ignition Compression Kind of fuel used Diesel oil F.P. 150° F.  
 Crank Shaft, dia. of journals as per Rule 346 mm Crank pin dia. 350 mm Crank Webs Mid. length breadth 710 mm Thickness parallel to axis 260 mm  
as fitted 350 mm Mid. length thickness 220 mm Thickness around eye hole 177.5 mm  
 Flywheel Shaft, diameter as per Rule 346 mm Intermediate Shafts, diameter as per Rule 235 mm Thrust Shaft, diameter at collars as per Rule 247 mm  
as fitted 350-390 mm at Hub. as fitted 275 mm as fitted 290 mm  
 Tube Shaft, diameter as per Rule Screw Shaft, diameter as per Rule 260 mm Is the tube shaft fitted with a continuous liner Yes  
as fitted as fitted 311 mm screw  
 Bronze Liners, thickness in way of bushes as per Rule 15.4 mm Thickness between bushes as per rule 11.6 mm Is the after end of the liner made watertight in the  
as fitted 15 mm & 18 mm Fm as fitted 11 mm propeller boss Yes If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner Continuous  
 If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive Yes  
 If two liners are fitted, is the shaft lapped or protected between the liners Yes Is an approved Oil Gland or other appliance fitted at the after  
 end of the tube shaft No Length of Bearing in Stern Bush next to and supporting propeller 11176 mm  
 Propeller, dia. 3600 mm Pitch 3100 mm No. of blades 4 Material Bronze whether Moveable Solid Total Developed Surface 39.7 sq. feet  
 Method of reversing Engines Direct Is a governor or other arrangement fitted to prevent racing of the engine when decelerated Yes Means of lubrication  
forced feed Thickness of cylinder liners 50 mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with  
non-conducting material Yes If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine Up Funnel.  
 Cooling Water Pumps, No. Three Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes  
 Bilge Pumps worked from the Main Engines, No. 2 (P. 15) Diameter 90 mm Stroke 400 mm Can one be overhauled while the other is at work Yes  
 Pumps connected to the Main Bilge Line { No. and Size 2 of 90 mm dia x 400 mm stroke | one recip. 20 ton/hr | Two Centrif. 150 ton/hr  
 How driven Main engine liners | motor | motor  
 Ballast Pumps, No. and size 1 @ 150 ton/hr 1 @ 20 ton/hr Lubricating Oil Pumps, including Spare Pump, No. and size 2 @ 140 L x 190 L x 200 mm dia.  
 Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge  
 Pumps, No. and size:—In Machinery Spaces 4 of 3 1/2" dia and one emergency 6" dia.  
 In Holds, &c. N° 1 hold 2 @ 3 1/2" dia N° 2 hold 2 @ 3 1/2" dia N° 3 hold 2 @ 3 1/2" dia N° 4 hold 2 @ 3 1/2" dia 1 @ 3" dia  
 Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size one of 6" dia.  
 Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Spaces  
 led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes (Mud box & Distrib. Chest one Centrif.)  
 Are all Sea Connections fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks Both  
 Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Yes Are the Overboard Discharges above or below the deep water line above  
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes  
 What pipes pass through the bunkers ✓ How are they protected ✓  
 What pipes pass through the deep tanks ✓ Have they been tested as per Rule ✓  
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes  
 Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one  
 compartment to another Yes Is the Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Upper Platform  
 If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork ✓

Main Air Compressors, No. one on each M.E No. of stages 3 Diameters 93-230-450 mm Stroke 400 mm Driven by Main Eng. liners  
 Auxiliary Air Compressors, No. one No. of stages 3 in tandem Diameters 90-320-360 mm Stroke 300 mm Driven by motor  
 Small Auxiliary Air Compressors, No. one No. of stages 2 Diameters 34-106 mm Stroke 160 mm Driven by Steam engine  
 Scavenging Air Pumps, No. ✓ Diameter ✓ Stroke ✓ Driven by ✓

Auxiliary Engines crank shafts, diameter as per Rule 189 mm 3 @ 70 Kw each.  
as fitted 185 mm dia

**AIR RECEIVERS:**—Is each receiver, which can be isolated, fitted with a safety valve as per Rule Safety valves fitted on air compressors discharge.  
 Can the internal surfaces of the receivers be examined Yes What means are provided for cleaning their inner surfaces Steam Conn: fitted  
 Is there a drain arrangement fitted at the lowest part of each receiver Yes

High Pressure Air Receivers, No. 3 Cubic capacity of each 2 @ 230 L & 1 @ 75 L Internal diameter 15 1/16" & 9 1/16" thickness 27/32" & 19/32"  
 Seamless, lap welded or riveted longitudinal joint Seamless Material Steel Range of tensile strength Unknown Working pressure by Rules 1530 & 1760 lbs  
 Starting Air Receivers, No. 4 Total cubic capacity 1360 ft<sup>3</sup> Internal diameter 1650 mm thickness 20 mm  
 Seamless, lap welded or riveted longitudinal joint YES Material Steel Range of tensile strength ENOS. 26-30 Tm Working pressure by Rules 19.8 kg/cm<sup>2</sup>  
SHELL 28-32

008168-008176-0164

C.  
A  
B



IS A DONKEY BOILER FITTED?

Yes

If so, is a report now forwarded?

Yes

PLANS. Are approved plans forwarded herewith for <sup>Crank</sup>Shafting

Yes

LP Receivers

YES

Separate Tanks

Yes

Donkey Boiler

Yes

General Pumping Arrangements

Oil Fuel Burning Arrangements

Yes

SPARE GEAR

2 cylinder liner with covers & valves complete for main engine

6 fuel & air & exhaust valves & springs complete for main engines & 3 off for Aux. engine

5 pistons with rings & 2 set piston rings for main engines one piston & 2 set rings for aux. engine

2 sets of telescopic piston cooling pipes for main engines

4 top end & 2 bottom end bearing bolts, & 2 main bearing bolts, for main engine

1 set main bearing trusses for main & aux. engines & aux. compressor

1 set crank pin " " " " " " " " " "

1 set crankhead trusses for main engine, 1 set crank & 1 set tunnel shaft coupling bolts

1 set of piston rings for each air compressor & 1 set of valves for aux. air compressor

also a large number of spare parts for all auxiliary machinery

one grinder, one lathe, one shaping machine & one boring machine in work shop.

also a quantity of hand tools, bolts, nuts, & iron of various sizes

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building  
During progress of work in shops - -  
During erection on board vessel - -  
Total No. of visits

Dates of Examination of principal parts—Cylinders

Covers

Pistons

Rods

Connecting rods

Crank shaft

Flywheel shaft

Thrust shaft

Intermediate shafts

Tube shaft

Screw shaft

Propeller

Stern tube

Engine seatings

Engines holding down bolts

Completion of fitting sea connections

Completion of pumping arrangements

Engines tried under working conditions 24-11-28

Crank shaft, Material

Steel

Identification Mark

Flywheel shaft, Material

Steel

Identification Mark

Thrust shaft, Material

do

Identification Mark

Intermediate shafts, Material

do

Identification Marks

Tube shaft, Material

do

Identification Mark

Screw shaft, Material

do

Identification Mark

Is the flash point of the oil to be used over 150° F.

Yes

Is this machinery duplicate of a previous case

If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.)

All parts of the main & auxiliary machinery of this vessel has been opened up & examined, the scantlings verified by actual measurement, & all found or now placed in good order. The H.P. air receiver <sup>& piping</sup> were tested by a water pressure of 1850 lbs per sq in & the L.P. receiver were tested by a water pressure of 434 lbs & all found good & tight. All air compressor intercoolers & oil coolers have been tested to twice their working pressure & found good & sound.

This machinery has been tried under full load working conditions with satisfactory results, & it is recommended that the notation L.M.C. be assigned in the Register Book.

The vessel is fitted for oil fuel (F.P. above 150° F.) & the requirements of section 20 of the Rules are now generally complied with, with the exception of, the suction pipes leading from the O.P. tunnel settling tanks into the engine room, are not fitted with valves at the engine room bulk head, and the suction valves on these tanks are not controlled from outside the compartment in which they are situated. For Particulars of the machinery survey see other sheet.

The amount of Entry Fee ... £ 63.65

When applied for,

Special ...

£ 728.75

When received,

Donkey Boiler Fee ... £

✓

Travelling Expenses (if any) £

✓

Committee's Minute

Assigned

See rpt. attached

FRI. 11 JAN 1929

TUE. 11 MAR 1930

TUE. 12 AUG 1930

Engineer Surveyor to Lloyd's Register of Shipping.

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